

## REQUEST FOR PROPOSAL – TECHNICAL SPECIFICATIONS

### REGENERATIVE AIR STREET SWEEPER with SHARED POWER

#### Chassis

##### 1.0 CHASSIS (2014 Model year Freightliner M2 (Dual) OR EQUAL)

**COMPLY**  
**Yes No**

- |     |                                                                                                                                                                                                                   |       |       |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 1.1 | Chassis shall be conventional design with 33,000 lb. GVW rating. State chassis make, model and point of manufacture:                                                                                              | _____ | _____ |
| 1.2 | Wheelbase shall not exceed 172 inches.                                                                                                                                                                            | _____ | _____ |
| 1.3 | Cab to axle shall be not more than 106 inches.                                                                                                                                                                    | _____ | _____ |
| 1.4 | Yield strength of the Rail, High Strength, 80,000 PSI, 9/32" X 3 7/16" X 10 1/8".                                                                                                                                 | _____ | _____ |
| 1.5 | For safety, the rear of the sweeper shall be equipped with a rear panel to provide under ride protection. When dumping debris, material shall not be discharged on top of the rear panel.                         | _____ | _____ |
| 1.6 | Front tow hooks shall be provided                                                                                                                                                                                 | _____ | _____ |
| 1.7 | One- (1) 50 US gallon fuel tank shall be shared by both engines and shall be easily accessible without raising or shifting any components. A fuel gauge, in cab, shall be supplied. Sight tube is not acceptable. | _____ | _____ |
| 1.8 | Diesel emissions shall be EPA 2010 and have a minimum capacity of 6 U.S. gallons diesel emissions fluid                                                                                                           | _____ | _____ |

##### 2.0 CHASSIS ENGINE

- |     |                                                                                                                                                  |       |       |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 2.1 | Truck engine shall be 2010 Emission Compliant, Cummins ISB 6.7-200 or equivalent, turbocharged diesel, 200 HP @ 2300 RPM, 520ft-lbs. @ 1600 RPM. | _____ | _____ |
| 2.2 | Truck engine shall be equipped with a single vertical exhaust system.                                                                            | _____ | _____ |
| 2.3 | The cooling system shall be protected to -34° F.                                                                                                 | _____ | _____ |
| 2.4 | Engine shall be equipped with block heater.                                                                                                      | _____ | _____ |
| 2.5 | Radiator fan shall be viscous drive type.                                                                                                        | _____ | _____ |
| 2.6 | 750 watt engine block heater shall be provided                                                                                                   | _____ | _____ |
| 2.7 | An air restrictor gauge shall be provided.                                                                                                       | _____ | _____ |

**COMPLY**  
**Yes No**

##### 3.0 TRANSMISSION, AXLES, WHEELS & BRAKES

Last Revised 08-19-2013

|      |                                                                                                                                                               |       |       |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 3.1  | An Allison 2500 RDS series (or approved equal) automatic transmission shall be provided.                                                                      | _____ | _____ |
| 3.2  | The 2-speed rear axle shall have a ratio of 6.17/8.40:1 for proper sweeping speeds.                                                                           | _____ | _____ |
| 3.3  | Front axle shall be 12,000 lb. and be equipped with taperleaf front suspension and shock absorbers.                                                           | _____ | _____ |
| 3.4  | The rear axle shall be 21,000 lb.                                                                                                                             | _____ | _____ |
| 3.5  | For safety, and to allow the emergency interchange of tires at a job site, the front and rear tires and rims shall be interchangeable.                        | _____ | _____ |
| 3.6  | Tires shall be tubeless radial tires 14 ply 11R22.5 "G" load rated. The rear axle shall include dual tires for load capacity; singles will not be acceptable. | _____ | _____ |
| 3.7  | Rims shall be 10 hole steel hub piloted 22.5 x 8.25                                                                                                           | _____ | _____ |
| 3.8  | Parking brake shall be spring applied rear wheel drum and shoe.                                                                                               | _____ | _____ |
| 3.9  | Brakes shall be full air brakes S Cam with a 18.7 CFM capacity compressor, with automatic slack adjusters and ABS.                                            | _____ | _____ |
| 3.10 | Air system shall include a Bendix AD-9 air dryer with heater.                                                                                                 | _____ | _____ |

#### **4.0 CAB**

**COMPLY**  
**Yes No**

|      |                                                                                                                                                                                                          |       |       |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 4.1  | Maximum visibility, forward line of sight from the chassis front bumper to the point on the ground visible to the operator shall not exceed 8 feet for an SAE 98 <sup>th</sup> percentile size operator. | _____ | _____ |
| 4.2  | Steering shall be full power with dual operator controls.                                                                                                                                                | _____ | _____ |
| 4.3  | Seats shall be adjustable, high back, covered with cloth for air circulation and include 3 point seat belts.                                                                                             | _____ | _____ |
| 4.4  | Curb side seat shall be Bostrom high-back air ride with single armrest on left side of seat.                                                                                                             | _____ | _____ |
| 4.5  | Sweeper shall include two (2) outside west coast type mirrors with lower 8 inch convex lens for easy viewing of the side broom during sweeping.                                                          | _____ | _____ |
| 4.6  | Above west coast type mirrors shall be heated and remote controlled from in cab.                                                                                                                         | _____ | _____ |
| 4.7  | To maximize operator visibility of the curb and sweeping gear, an 8" outside RH fender mirror shall be mounted forward of the front wheels.                                                              | _____ | _____ |
| 4.8  | To maximize operator visibility of the curb and sweeping gear, an 8" outside LH fender mirror shall be mounted forward of the front wheels.                                                              | _____ | _____ |
| 4.9  | For safety during night sweeping, switches shall be illuminated so that they can be readily identified without the use of the cab dome light.                                                            | _____ | _____ |
| 4.10 | Switches shall be clearly identified by name and symbol.                                                                                                                                                 | _____ | _____ |
| 4.11 | Cab interior environment shall be fully air-conditioned including a fresh air heater/ventilator/defroster.                                                                                               | _____ | _____ |
| 4.12 | Cab shall have full flow through ventilation for optimal temperature control and operator                                                                                                                | _____ | _____ |

comfort.

|      |                                                                                                                             |     |     |
|------|-----------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 4.13 | Wipers shall have intermittent feature.                                                                                     | ___ | ___ |
| 4.14 | Interior of cab shall have acoustical insulation for low operating noise, automotive type trim, and center sweeper console. | ___ | ___ |
| 4.15 | Dash shall be faced with soft molded plastic.                                                                               | ___ | ___ |
| 4.16 | All glass shall be tinted safety glass.                                                                                     | ___ | ___ |
| 4.17 | Each operator position shall have adjustable sun visor.                                                                     | ___ | ___ |
| 4.18 | Doors shall be keyed alike locks.                                                                                           | ___ | ___ |
| 4.19 | Door windows shall be roll up type.                                                                                         | ___ | ___ |
| 4.20 | Side windows shall have defogger.                                                                                           | ___ | ___ |
| 4.21 | Cab shall include 12V power supply                                                                                          | ___ | ___ |
| 4.22 | Cab shall include AM/FM radio and Ipod plug in with (2) speakers and antenna                                                | ___ | ___ |
| 4.23 | Dual Electric horns shall be provided.                                                                                      | ___ | ___ |
| 4.24 | Dual air horns shall be provided.                                                                                           | ___ | ___ |
| 4.25 | Cab shall be wired for 2-way radio (supplied and installed by the Village)                                                  | ___ | ___ |

#### **5.0 INSTRUMENTS**

**COMPLY**  
**Yes No**

|     |                                                                                                                                                                                                                                                                                           |     |     |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 5.1 | Chassis left side operator instrument panel shall be chassis OEM, full vision illuminated with tachometer, speedometer, odometer, trip odometer, hour meter, fuel gauge, water temperature gauge, oil pressure gauge, transmission temperature gauge, air pressure gauge, and volt gauge. | ___ | ___ |
| 5.2 | Chassis right side operator instrument panel shall be chassis OEM, full vision illuminated with tachometer, speedometer, fuel gauge, water temperature gauge, oil pressure gauge, transmission temperature gauge, air pressure gauge, and volt gauge.                                     | ___ | ___ |
| 5.3 | Chassis engine instruments shall include a battery warning light and a warning light and chime for low coolant level and high coolant temperature to warn the operator of a potential problem before any damage to the engine occurs.                                                     | ___ | ___ |
| 5.4 | Console shall have left/right primary driver switch.                                                                                                                                                                                                                                      | ___ | ___ |
| 5.5 | Hydraulic functions shall be controlled by rocker switches located in the cab mounted control panel.                                                                                                                                                                                      | ___ | ___ |
| 5.6 | All console switches including transmission controls and all gauges shall be illuminated.                                                                                                                                                                                                 | ___ | ___ |
| 5.7 | Intake mounted air restriction indicator with graduations.                                                                                                                                                                                                                                | ___ | ___ |

#### **6.0 ELECTRICAL**

**COMPLY**  
**Yes No**

|     |                                                                                                                                                                                                                                                           |       |       |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 6.1 | Batteries should be located in an enclosed accessible environment for long life and ease of service.                                                                                                                                                      | _____ | _____ |
| 6.2 | Chassis shall have two (2) maintenance free batteries rated at not less than 1850 CCA total, 12 volt.                                                                                                                                                     | _____ | _____ |
| 6.3 | Chassis engine shall have a 160 amp alternator.                                                                                                                                                                                                           | _____ | _____ |
| 6.4 | Chassis lighting shall include sealed multi-beam halogen head-lights, stop lights, tail lights, backup lights, license plate lights, clearance lights, signal lights, illuminated gauges and instrument panel, and directional lights with hazard switch. | _____ | _____ |
| 6.5 | LED stop/turn/tail lights shall be mounted in rear bumper                                                                                                                                                                                                 | _____ | _____ |

## Sweeper Module

|                                             |                                                                                                                                                                                                                                                                                                                                       | COMPLY |       |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
|                                             |                                                                                                                                                                                                                                                                                                                                       | Yes    | No    |
| <b><u>7.0 SWEEPER with SHARED POWER</u></b> |                                                                                                                                                                                                                                                                                                                                       |        |       |
| 7.1                                         | Shared power is defined as a sweeper system that is power-driven by a combination of chassis and auxiliary engine horsepower. For gained economy, the sweeper system shall utilize horsepower captured by chassis regenerative braking.                                                                                               | _____  | _____ |
| 7.1.a                                       | At sweeping vehicle speed, the chassis engine shall be capable of propelling the vehicle and providing additional horsepower for sweeping functions via the shared power system. The chassis typically has a minimum of 50 hp (37 kW) available while at idle. Please refer to Chassis section 2.0 for type of chassis engine listed. | _____  | _____ |
| 7.1.b                                       | Auxiliary diesel engine shall be a 4 cylinder, turbocharged, dynamically counter balanced 276 CID (John Deere 4045T or equal). Engine must be EPA Tier 4i Emission compliant but subject to change based on EPA emission compliant engine availability and future emission regulatory changes.                                        | _____  | _____ |
| 7.2                                         | Auxiliary engine horsepower rating shall be 74 (55 kW) @ 2400 RPM, torque 195 lb-ft @1700 RPM.                                                                                                                                                                                                                                        | _____  | _____ |
| 7.3                                         | A battery disconnect shall be provided.                                                                                                                                                                                                                                                                                               | _____  | _____ |
| 7.4                                         | A turbo II pre-cleaner shall be provided.                                                                                                                                                                                                                                                                                             | _____  | _____ |
| 7.5                                         | A block heater of no less than 1000W shall be provided.                                                                                                                                                                                                                                                                               | _____  | _____ |
| 7.6                                         | Auxiliary engine shall drive the blower "fan" by a heavy-duty five (5) "V" groove power belt for simplicity and ease of maintenance.                                                                                                                                                                                                  | _____  | _____ |
| 7.7                                         | Auxiliary engine shall have electric linear actuator for throttle control.                                                                                                                                                                                                                                                            | _____  | _____ |
| 7.8                                         | Auxiliary engine shall be protected by a dual safety element dry type air cleaner & restriction indicator that indicates it is time to service the filter element.                                                                                                                                                                    | _____  | _____ |
| 7.9                                         | Auxiliary engine shall be filled with 50/50 mixture anti-freeze/water for cold weather storage and or operation.                                                                                                                                                                                                                      | _____  | _____ |
| 7.10                                        | For greater heat dissipation, less noise and lower cost of maintenance, auxiliary engine shall have individually replaceable wet sleeve cylinder liners.                                                                                                                                                                              | _____  | _____ |
| 7.11                                        | To accommodate both easy access and sound attenuation, the engine shall be enclosed on both sides by two access doors, one on each side of the sweeper body. These doors provide access to serviceable items without tilting the hopper.                                                                                              | _____  | _____ |
| <b><u>8.0 BLOWER</u></b>                    |                                                                                                                                                                                                                                                                                                                                       |        |       |
|                                             |                                                                                                                                                                                                                                                                                                                                       | Yes    | No    |
| 8.1                                         | Blower shall be driven by a five (5) "V" groove power belt for maximum performance and simplicity of construction, with manual tension adjustment not requiring repositioning of the engine.                                                                                                                                          | _____  | _____ |

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |       |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 8.2  | Shared power system shall provide all horsepower for fan speed of 3400 RPM to effectively convey the bulk of material into the debris hopper; debris types such as but not limited to trash, sand, gravel, dirt, leaves and other organics.                                                                                                                                                                                                                                                                  | _____ | _____ |
| 8.3  | Blower shall be a closed face turbine type, 31 3/8 in. diameter, with 9 vanes constructed of Hardox® 500 steel for optimal combination of hardness and abrasion resistance for maximum service life. An open faced fan will not provide adequate combination of air flow and vacuum, and is not acceptable. Impellers constructed of material other than Hardox® 500 steel will not be accepted. For longevity of the fan and maximum bearing life, the impeller must be balanced to within .5 ounce-inches. | _____ | _____ |
| 8.4  | The blower shall be constructed using a robotic arc welder for accuracy and repeatability to a minimum of 0.0225 in., including features such as touch sensing, weaving and seam tracking information to precisely lay a quality weld that's in accordance with AWS D1.1 standards. Blowers constructed from cast aluminum are not acceptable.                                                                                                                                                               | _____ | _____ |
| 8.5  | A flow blocker shall be provided. The flow blocker must shut off flow to the fan and be manually engaged by operator in cab.                                                                                                                                                                                                                                                                                                                                                                                 | _____ | _____ |
| 8.6  | The blower housing shall be constructed of 10 gauge steel and lined with 0.25" thick Linatex natural rubber for maximum extended wear in abrasive environments.                                                                                                                                                                                                                                                                                                                                              | _____ | _____ |
| 8.7  | The blower housing shall be constructed using a robotic arc welder for accuracy and repeatability to a minimum of 0.0225 in., including features such as touch sensing, weaving and seam tracking information to precisely lay a quality weld that's in accordance with AWS D1.1 standards.                                                                                                                                                                                                                  | _____ | _____ |
| 8.8  | Blower housing shall have an inspection door for access to blower without removing the blower housing or looking into the air exhaust opening.                                                                                                                                                                                                                                                                                                                                                               | _____ | _____ |
| 8.9  | Blower housing shall not be an integral part of the hopper. Replacement of the blower housing must be possible without any cutting and/or welding of the housing and or hopper.                                                                                                                                                                                                                                                                                                                              | _____ | _____ |
| 8.10 | The blower shall be mounted and supported on both sides by heavy-duty greasable bearings. Greasing of the bearings must be possible from ground level, without tilting the hopper. Only greasable bearings are capable of tolerating the fan speeds required to produce simultaneous high air flow and high vacuum levels.                                                                                                                                                                                   | _____ | _____ |
| 8.11 | The blower must not be directly exposed or open to the dust separator to preclude carry-over of material from the separator into the blower and blower housing.                                                                                                                                                                                                                                                                                                                                              | _____ | _____ |

|                               |                                                                                                                                                                                                                                          | <b>COMPLY</b>     |                  |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|
| <b><u>9.0 PICKUP HEAD</u></b> |                                                                                                                                                                                                                                          | <b><u>Yes</u></b> | <b><u>No</u></b> |
| 9.1                           | The pickup head is a spring-supported, all steel fabricated pickup head with separated upper and lower chambers where pressurized air is blasted from the upper chamber through an elongated blast orifice, to the lower vacuum chamber. | _____             | _____            |
| 9.2                           | The pickup head shall not be less than 90 inches wide and 30 inches long for a total area of 2700 square inches.                                                                                                                         | _____             | _____            |
| 9.3                           | The pickup head shall have a minimum of 14 inch diameter pressure hose that connects the blower outlet with the pickup head. Urethane transition pieces between the pressure                                                             | _____             | _____            |

|     |                                                                                                                                                                                                                                                                                               |       |       |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
|     | hose and the pickup head are not acceptable.                                                                                                                                                                                                                                                  |       |       |
| 9.4 | The pickup head shall have a minimum 12 3/4 inch diameter suction hose with a quick disconnect coupling at the lower end near the pickup head. The quick disconnect enables the operator to inspect the suction hose as well as the inlet area of the pickup head without tilting the hopper. | _____ | _____ |
| 9.5 | The pressure side shall be equipped with a pressure relief valve/vacuum enhancer/leaf bleeder, for optimum leaf and light debris sweeping.                                                                                                                                                    | _____ | _____ |
| 9.6 | The front and rear debris curtains shall be removable without removing the pickup head from the unit.                                                                                                                                                                                         | _____ | _____ |
| 9.7 | Sweeping paths:                                                                                                                                                                                                                                                                               |       |       |
|     | Pickup head only = 90 inches                                                                                                                                                                                                                                                                  | _____ | _____ |
|     | One side broom and pickup head = 117 inches                                                                                                                                                                                                                                                   | _____ | _____ |
|     | Two side brooms and pickup head = 144 inches                                                                                                                                                                                                                                                  | _____ | _____ |
| 9.8 | The pickup head shall be equipped with side mounted adjustable steel runners with carbide inserts with a minimum width of 1 1/8 inches for long life.                                                                                                                                         | _____ | _____ |
| 9.9 | The pickup head shall be raised and lowered hydraulically by a rocker switch on the control panel inside the cab.                                                                                                                                                                             | _____ | _____ |

|                                |                                                                                                                                                                                                                                                                                             | <b>COMPLY</b>     |                  |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------|
| <b><u>10.0 SIDE BROOMS</u></b> |                                                                                                                                                                                                                                                                                             | <b><u>Yes</u></b> | <b><u>No</u></b> |
| 10.1                           | The right and left side broom shall be a free floating trailing arm design intended to prevent damage when sweeping and encountering a fixed obstacle. The trailing arm shall be of a parallelogram design for simple, non-binding action/motion and for constant bristle and wear pattern. | _____             | _____            |
| 10.2                           | The side brooms shall be 42-inch diameter minimum, with hydraulically driven rotation.                                                                                                                                                                                                      | _____             | _____            |
| 10.3                           | The side broom control system must allow the brooms to be retracted while sweeping, to provide scrubbing action in front of the pickup head. This feature shall be controlled from the operator console.                                                                                    | _____             | _____            |
| 10.4                           | The curb side broom shall tilt from within cab by and electronically controlled linear actuator and show tilt angle in 0.5° increments in the sweeper console                                                                                                                               | _____             | _____            |
| 10.5                           | The street side broom shall tilt from within cab by and electronically controlled linear actuator and show tilt angle in 0.5° increments in the sweeper console                                                                                                                             | _____             | _____            |
| 10.6                           | Brooms shall be pneumatically raised, lowered and suspended.                                                                                                                                                                                                                                | _____             | _____            |
| 10.7                           | Adjustable down pressure shall be pneumatically controlled by the operator from the cab in order to maintain proper surface contact consistently during vertical broom travel.                                                                                                              | _____             | _____            |
| 10.8                           | The broom hydraulic motor drive shall provide not less than 6045 in-lbs. of torque for superior digging power and speed.                                                                                                                                                                    | _____             | _____            |
| 10.9                           | The side broom assemblies shall have greasable pivot pins.                                                                                                                                                                                                                                  | _____             | _____            |
| 10.10                          | The side broom assemblies shall be held in the storage position by a positive means to support broom during travel.                                                                                                                                                                         | _____             | _____            |

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10.11 Each side broom shall be controlled from in the cab by rocker switches.

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\_\_\_\_\_  
**COMPLY**  
**Yes No**

**11.0 HOPPER**

11.1 Volumetric capacity shall be 8 cubic yards class hopper.

\_\_\_\_\_  
\_\_\_\_\_

11.2 Hopper shall be constructed of 10 gauge steel sides, and ¼ in. steel floor.

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\_\_\_\_\_

11.3 The hopper floor angle when dumping shall be a minimum of 50°. Dumping shall be accomplished by tilting the hopper via a two-stage telescopic cylinder. The use of multiple cylinders for tilting the hopper shall not be acceptable. Relying solely on a moving raker bar, which is attached to the rear door inside the hopper, in lieu of tipping the hopper for dumping shall not be acceptable.

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11.4 The hopper floor angle shall be a minimum of 10° to assist in easy dump off of debris.

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11.5 For superior impingement and abrasion wear, a LifeLiner hopper system shall be provided to protect the hopper against corrosion and wear and to facilitate the removal of the debris when dumping. This liner system shall provide protection such that the hopper will be warranted for the life of the sweeper. Bare steels including stainless steels are unacceptable as they do not provide sufficient protection for long term wear

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11.6 The hopper shall have an external hopper prop. No exception to this feature shall be accepted.

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11.7 A removable, adjustable, abrasion resistant "scoop" style steel deflector shall be located at the suction inlet. This scoop is to direct material to the center of the hopper for optimal loading.

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\_\_\_\_\_

11.8 The hopper rear door shall be hinged at the top and opened by means of a hydraulic cylinder. The hopper door shall open first prior to tilting the hopper. The hopper rear door should open at a minimum angle of 90° and be perpendicular to the hopper opening for maximum dumping action. The Village has evaluated many styles and considers this design to be the most effective for dumping and cleaning. No exceptions to this requirement will be acceptable.

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11.9 Dump control shall consist of weatherproof toggle switches located on the exterior right side of sweeper along with in-cab dump switches. Hopper raise/lower and hopper door open/close shall also be included.

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11.10 The rear hopper door shall have an external door prop. No exception to this feature shall be accepted.

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11.11 A right hand side rear hopper inspection door and step shall be provided

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\_\_\_\_\_

11.12 A 6" hopper door drain with hose shall be provided

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\_\_\_\_\_

11.13 The hopper rear door shall include an automatic lock mechanism for a tight fit and optimal sealing between the hopper and the rear door.

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11.14 The rear door seal shall be a water resistant heavy-duty reinforced D style rubber seal for optimal sealing. Foam seals that can absorb moisture and freeze are not acceptable.

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11.15 Two 34½" x 43½" screens, for a total screen area 3000 square inches, of not less than 11 gauge steel shall be installed to allow air to move freely from the hopper into the

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centrifugal dust separator. The hopper screens shall be hinged and easily lowered for cleaning and inspection without tools or pin's removal.

- |       |                                                                                                                                                                                                                |     |     |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 11.16 | An 8 in. (203 mm) diameter, 9.5 ft. (2,896 mm) long hydraulically operated wandering hose located at the rear of the machine capable of deep cleaning catch basins with finger tip controls shall be provided. | ___ | ___ |
| 11.17 | A 4' aluminum catch basin cleaning tube and metal storage rack mounted on rear door shall be provided                                                                                                          | ___ | ___ |

### **12.0 DUST SEPARATOR**

**COMPLY**  
**Yes   No**

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|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 12.1   | Dirt separation from the air stream shall be accomplished by means of a Labyrinth style dust separator that is installed at the air outlet of the hopper. The separator shall be designed so that it will not plug with debris.                    | ___ | ___ |
| 12.1.a | To allow inspection and cleaning of the separator interior, the dust separator shall have minimum of two hinged inspection doors. Both doors are self-opening when tilting the hopper.                                                             | ___ | ___ |
| 12.1.b | To allow automatic discharge of debris when tilting the hopper, the dust separator shall have a self-opening door made of abrasion resistant steel. Cable or other manual/mechanical means required for discharging the separator are not allowed. | ___ | ___ |

### **13.0 SPRAY WATER SYSTEM**

**COMPLY**  
**Yes   No**

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|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 13.1  | The water tank shall be a removable 240 US gallon total capacity with 2-1/2" air gap and be constructed of rust-proof polyethylene.                                                                                                | ___ | ___ |
| 13.2  | The water tank shall be frame mounted with no part sharing any common wall with the hopper and shall not rise during hopper dumping for better weight distribution.                                                                | ___ | ___ |
| 13.3  | A 16 ft. 8 inch fill hose with NST coupling with strainer shall be supplied.                                                                                                                                                       | ___ | ___ |
| 13.4  | A water level gauge shall be provided on the control console within the cab.                                                                                                                                                       | ___ | ___ |
| 13.5  | All water lines shall be color coded green for easy identification, independent of air lines.                                                                                                                                      | ___ | ___ |
| 13.6  | The water filter must be accessible and cleanable from ground level without tilting the hopper. A ball valve must be provided at the filter inlet to allow cleaning of the filter without the loss of water from the water tank. . | ___ | ___ |
| 13.7  | All water piping shall be external to the operator cab. No water lines capable of leaking or bursting shall be within the cab.                                                                                                     | ___ | ___ |
| 13.8  | Three (3) water spray nozzles are located at each side broom for optimal dust control. A pivoting bracket is provided to allow for optimum positioning of the side broom spray nozzles.                                            | ___ | ___ |
| 13.9  | Seven (7) easily removable water spray nozzles are located inside the pickup head. Water spray nozzles that spray only on the outside of the pickup head are not acceptable.                                                       | ___ | ___ |
| 13.10 | Three (3) removable water spray nozzles are located at the lower portion of the suction                                                                                                                                            | ___ | ___ |

|         |                                                                                                                                                |       |       |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
|         | hose for lubrication of the suction hose and to further enhance dust control.                                                                  |       |       |
| 13.11   | Four (4) removable water spray nozzles on a spray bar mounted to the front bumper shall be provided.                                           | _____ | _____ |
| 13.12   | Two electric 12 volt, diaphragm type pumps will provide a capacity for 8 GPM @ 40PSI to the pickup head, the suction hose and the side brooms. | _____ | _____ |
| 11.11.a | One water pump is dedicated to supplying water to the pickup head and the suction hose for dust control.                                       | _____ | _____ |
| 11.11.b | One water pump is dedicated to the side brooms for dust control.                                                                               | _____ | _____ |
| 13.13   | Each water pump must have two flow rates, selectable by the operator from within the cab and capable of running dry without damage.            | _____ | _____ |
| 13.14   | A high pressure pump with 24 in. (610 mm) hand lance and 30 ft. (9m. 140mm.) hose providing 4.2 GPM (15.9 L/m) at 1500 PSI shall be provided.  | _____ | _____ |

#### **14.0 HYDRAULIC SYSTEM**

**COMPLY**  
**Yes No**

|      |                                                                                                                                                                                     |       |       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 14.1 | Hydraulic pump shall be a gear driven, gear style pump for maintenance free operation, having a flow capacity of 7.7 GPM @ 2500 RPM.                                                | _____ | _____ |
| 14.2 | Reservoir capacity shall be not less than 23 US gallons and have an exterior sight gauge. The reservoir must be located for quick inspections without tilting the hopper.           | _____ | _____ |
| 14.3 | All hydraulic circuits shall have quick disconnect pressure check ports for ease of maintenance.                                                                                    | _____ | _____ |
| 14.4 | Hydraulic oil cooler shall be standard to provide adequate cooling with fresh air intake and accessible without raising the hopper. The hydraulic system shall operate below 200°F. | _____ | _____ |
| 14.5 | To minimize the hazards of potential leakage, all high pressure fittings shall be O-Ring Face Seal (ORFS) type. Other systems shall not be acceptable.                              | _____ | _____ |
| 14.6 | An auxiliary hydraulic pump allowing the opening of rear door and lifting of hopper without auxiliary engine running shall be provided.                                             | _____ | _____ |

#### **15.0 PNEUMATIC SYSTEM**

**COMPLY**  
**Yes No**

|      |                                                                                                                                            |       |       |
|------|--------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 15.1 | There shall be a PR4 protector type pressure protector for the chassis air system.                                                         | _____ | _____ |
| 15.2 | A separate air tank for the sweeper air components shall be provided.                                                                      | _____ | _____ |
| 15.3 | All pneumatic cylinders shall be interchangeable.                                                                                          | _____ | _____ |
| 15.4 | All pneumatic cylinders must be rated to 150 PSI and have a separate rod seal and wiper to prevent contamination entering the cylinder.    | _____ | _____ |
| 15.5 | Each cylinder shall be controlled by a single, two position, solenoid valve mounted on a manifold with common input and exhaust.           | _____ | _____ |
| 15.6 | There shall be a filter with a polycarbonate bowl to filter out contaminants down to 5 microns to prevent contamination in the air system. | _____ | _____ |

|                                      |                                                                                                                                                                                         | <b>COMPLY</b> |           |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|
|                                      |                                                                                                                                                                                         | <b>Yes</b>    | <b>No</b> |
| <b><u>16.0 ELECTRICAL SYSTEM</u></b> |                                                                                                                                                                                         |               |           |
| 16.1                                 | Sweeper engine shall have one (1) 945 CCA, 12 volt battery.                                                                                                                             | ___           | ___       |
| 16.2                                 | Sweeper engine shall have a 95 amp alternator.                                                                                                                                          | ___           | ___       |
| 16.3                                 | Sweeper shall have an electronic back-up alarm for additional warning and safety when chassis is in reverse.                                                                            | ___           | ___       |
| 16.4                                 | Sweeper shall have a rear facing back-up camera for additional safety and operator awareness of surroundings.                                                                           | ___           | ___       |
| 16.6                                 | All work lights shall be controlled by individual rocket switches for each lighting function. Please list all work light options and pricing on cover letter. LED lights are preferred. | ___           | ___       |
| 16.7                                 | Sweeper lighting shall include rear identification lights and rear clearance lights.                                                                                                    | ___           | ___       |
| 16.8                                 | Sweeper warning lights shall include hopper up, hopper door open and hopper full load.                                                                                                  | ___           | ___       |
| 16.9                                 | Sweeper wiring harnesses shall be color-coded and "function stamped" with appropriate circuit name every four inches, i.e. "Ignition", "Side Broom" on each wire.                       | ___           | ___       |
| 16.10                                | All electrical circuits must be protected by automotive style blade fuses.                                                                                                              | ___           | ___       |
| 16.11                                | A rear mounted LED arrow stick with in cab controller shall be supplied.                                                                                                                | ___           | ___       |
| 16.12                                | LED Strobe lights mounted on front of cab and rear of hopper shall be provided                                                                                                          | ___           | ___       |

|                             |                                                                                                                                                                                                                                                                                                | <b>COMPLY</b> |           |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|
|                             |                                                                                                                                                                                                                                                                                                | <b>Yes</b>    | <b>No</b> |
| <b><u>17.0 CONTROLS</u></b> |                                                                                                                                                                                                                                                                                                |               |           |
| 17.1                        | Controls shall include a single switch that facilitates the deployment of all previously set sweeper functions. The single switch shall control at least, pickup head position, side broom position, and broom tilt position if so equipped. System shall be Elgin Memory Sweep or equivalent. | ___           | ___       |
| 17.2                        | Electric solenoid water valves shall be in-cab, individually controlled, for use of water at each sweep function location.                                                                                                                                                                     | ___           | ___       |
| 17.3                        | All sweeper controls shall be mounted on a stationary central console that allows for use and visibility from either right or left positions.                                                                                                                                                  | ___           | ___       |
| 17.4                        | The controls shall include sweep, spray water and lighting functions.                                                                                                                                                                                                                          | ___           | ___       |
| 17.5                        | The controls for sweeping, spray water, and lighting functions shall be rocker switches.                                                                                                                                                                                                       | ___           | ___       |
| 17.6                        | Controls for auxiliary engine ignition and throttle, side broom down pressure shall be located in the control console.                                                                                                                                                                         | ___           | ___       |
| 17.7                        | Controls for sweep system shall include sweep/resume feature; allowing the automatic raise when chassis transmission gear selector is put into reverse of side brooms and pickup head.                                                                                                         | ___           | ___       |

|                                |                                                                                     | <b>COMPLY</b> |           |
|--------------------------------|-------------------------------------------------------------------------------------|---------------|-----------|
|                                |                                                                                     | <b>Yes</b>    | <b>No</b> |
| <b><u>18.0 INSTRUMENTS</u></b> |                                                                                     |               |           |
| 18.1                           | Sweeper instruments shall include in-cab display of gutter broom hours for operator | ___           | ___       |

|      |                                                                                                                                                                                                                                                 |     |     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
|      | awareness of broom productivity and maximum service life                                                                                                                                                                                        |     |     |
| 18.2 | Controls shall include an in-cab switch for vacuum enhancer, with percent open / close display for increased operator awareness for adjustment of pickup head vacuum level for continuous pickup of leaves and bulky debris                     | ___ | ___ |
| 18.2 | Sweeper engine instruments shall include tachometer, hour meter, oil pressure, fuel, voltage, and coolant temperature for complete information for the operator on the condition of the auxiliary engine, visible from both operator positions. | ___ | ___ |
| 18.3 | Sweeper engine instruments shall include an auxiliary engine air intake restriction gauge for ease of maintenance.                                                                                                                              | ___ | ___ |
| 18.4 | Sweeper instruments shall include diagnostic information for the sweeper engine and sweeper functional information to include water level, sweeping mode and transport mode.                                                                    | ___ | ___ |
| 18.5 | Sweeper instruments shall include a "raised" hopper indicator, an "open" hopper door indicator and a "full" hopper indicator to notify the operator.                                                                                            | ___ | ___ |

|                          |                                                                                                                                                                                                                         | <b>COMPLY</b> |           |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|
|                          |                                                                                                                                                                                                                         | <b>Yes</b>    | <b>No</b> |
| <b><u>19.0 PAINT</u></b> |                                                                                                                                                                                                                         |               |           |
| 19.1                     | All visible exterior metallic surfaces shall be coated prior to assembly with polyester powder coat. The paint must be a minimum of 2 mils thick. The uses of acrylic enamels and/or polyurethane's are not acceptable. | ___           | ___       |
| 19.2                     | Color shall be the factory color of White.                                                                                                                                                                              | ___           | ___       |
| 19.3                     | Vehicle shall have an accent color of Grey on the components and lower portions of the unit.                                                                                                                            | ___           | ___       |

|                            |                                                        | <b>COMPLY</b> |           |
|----------------------------|--------------------------------------------------------|---------------|-----------|
|                            |                                                        | <b>Yes</b>    | <b>No</b> |
| <b><u>20.0 MANUALS</u></b> |                                                        |               |           |
| 20.1                       | A sweeper operation manual shall be provided.          | ___           | ___       |
| 20.2                       | A sweeper parts manual shall be provided.              | ___           | ___       |
| 20.3                       | A sweeper service manual shall be provided             | ___           | ___       |
| 20.4                       | An auxiliary engine parts manual shall be provided     | ___           | ___       |
| 20.5                       | An auxiliary engine operators manual shall be provided | ___           | ___       |
| 20.6                       | A chassis parts book shall be provided                 | ___           | ___       |
| 20.7                       | A chassis operator book shall be provided              | ___           | ___       |
| 20.8                       | A chassis service manual shall be provided             | ___           | ___       |

|                             |                                                                                                               | <b>COMPLY</b> |           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------|---------------|-----------|
|                             |                                                                                                               | <b>Yes</b>    | <b>No</b> |
| <b><u>21.0 WARRANTY</u></b> |                                                                                                               |               |           |
| 21.1                        | Manufacturer's warranty shall be not less than one (1) year on entire sweeper, including all parts and labor. | ___           | ___       |
| 21.2                        | Manufacturer's warranty shall be not less than three (3) years on chassis engine, including                   | ___           | ___       |

all parts and labor.

- |      |                                                                                                                                                                                                                                                                                                                                                             |       |       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 21.3 | Manufacturer's warranty shall be not less than lifetime protection against rust-through of the water tank.                                                                                                                                                                                                                                                  | _____ | _____ |
| 21.4 | Bidders submitting literature stating warranties which do not fully comply with warranty requirements of this specification must submit a letter from the manufacturer certifying warranty compliance as an integral part of their proposal. Failure to comply may cause the proposal shall be deemed "non-responsive" and rejected without further review. | _____ | _____ |

## **22.0 SERVICE AND TRAINING**

**COMPLY**  
**Yes    No**

- |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 22.1 | Vendors shall have a full parts and service facility within a reasonable distance from the Village garage. State location and distance.<br><br>_____                                                                                                                                                                                                                                                                                                        | _____ | _____ |
| 22.2 | A qualified technician shall provide complete training to Village personnel at the Village Garage. Training shall include safety, operation, maintenance and service.                                                                                                                                                                                                                                                                                       | _____ | _____ |
| 22.3 | Selling dealer must supply a minimum of 10 municipal references using quoted regenerative air sweeper within a 200km radius of Cumberland.                                                                                                                                                                                                                                                                                                                  | _____ | _____ |
| 22.4 | Please provide the following information:<br>Years dealership has been representing quoted sweeper<br>Hours of operation for parts and service<br>Number of factory trained mechanics and their credentials<br>Number of parts personnel<br>Number of regenerative sweepers that have been sold and are being serviced by dealer in BC<br>Inventory of parts (in dollars) stocked in BC for quoted sweeper (this may be verified by the Operations Manager) | _____ | _____ |

## **23.0 DELIVERY**

**COMPLY**  
**Yes    No**

- |      |                                                                                                   |       |       |
|------|---------------------------------------------------------------------------------------------------|-------|-------|
| 23.1 | Sweeper shall be delivered F.O.B. Village of Cumberland in first class operating condition.       | _____ | _____ |
| 23.2 | Acceptance shall be subject to the inspection and approval of the Village of Cumberland Mechanic. | _____ | _____ |
| 23.3 | Bidder shall state delivery time after receipt of order:<br><br>_____                             | _____ | _____ |

## **24.0 QUALITY**

- |      |                                                                                                      |       |       |
|------|------------------------------------------------------------------------------------------------------|-------|-------|
| 24.1 | Sweeper shall be manufactured by a company with a registered quality standard no less than ISO 9001. | _____ | _____ |
|------|------------------------------------------------------------------------------------------------------|-------|-------|

## **25.0 OPTIONAL ITEMS**

Please provide list of all available options on cover letter. The Village of Cumberland may choose, at its sole discretion, to add any or all of the optional items to this purchase.

## **26.0 EXCEPTIONS AND DEVIATIONS**

Bidder shall fully describe every variance, exception and/or deviation. Additional sheets may be used if required.

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## **27.0 TRADE-IN SWEEPER**

The Village of Cumberland would like to ask for a trade-in price for their Sunvac sweeper mounted on a 1997 Ford CF7000. Chassis shows approximately 38,000 miles and auxiliary engine hour meter shows approximately 880 hours (*not accurate, it is estimated to have had roughly 3,200 hours when meter was replaced.*) Sweeper inspection can be arranged through the Village Mechanic, Darryl Barker, via email [dbarker@cumberland.ca](mailto:dbarker@cumberland.ca). The Village has the right to accept or reject the trade-in price.